

**EFFECT OF MOBILE LENDING ON THE QUALITY OF
BANK LOAN PORTFOLIO: A CASE OF SELECTED
COMMERCIAL BANKS IN KENYA**

NJERU LINUS KITHINJI

**A RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE
SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI**

DECEMBER, 2018

DECLARATION

This research project is my original work that has not been presented for a degree in any other University. For any other award and where other people's research was used, they have been fully acknowledged. No part of this project should be reproduced without authority of the author or/and the University of Nairobi.

Sign.....

Date.....

Njeru Linus Kithinji

D63/90107/2017

This research project has been submitted for examination with my approval as university supervisor.

Sign.....

Date.....

Dr. Mirie Mwangi

Department of Finance and Accounting

School of Business

University of Nairobi

ACKNOWLEDGEMENTS

I thank all persons who contributed to my achievement of this course. The formulation of this research project has been a long and challenging process, I wouldn't have succeeded without their support.

First, I prolong my gratitude to my supervisors, Dr. Mirie Mwangi for his technical advice and guidance throughout the project and Mr. James Ng'ang'a whose guidance facilitated the compilation of this project. I salute University of Nairobi staff especially the Department of Accounting and Finance and my fellow classmates for sharing thoughts during the development of the project.

I acknowledge all the respondents of my research especially from the banking sector for the support. Special thanks to Mrs. Tabitha Kiragu for the time accorded in shaping my schedule, Ms. Sharon Omwega for the invaluable information source and the entire staff of Commercial Bank of Africa for your valuable input.

I acknowledge my family the moral support, encouragement and understanding during the development of the project. First, I thank my wife Mrs. Dinah Kathure for being a pillar of my motivation to pursue my studies. I thank my siblings for their help through the course. Sincere gratefulness to my parents Mr. Nicholas Njeru and Mrs. Anastacia Njeru for giving me basic education and being the inspiration for my higher education. I will forever be indebted.

DEDICATION

I wish to dedicate this research project to my dear Mrs. Dinah Kathure and my daughter Shantell Blessing for their steadfast love, support and patience during the entire course.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
APR	Annual Percent Rate
CAK	Communications Authority of Kenya
CBA	Commercial Bank of Africa
CBK	Central Bank of Kenya
CBs	Commercial Banks
CBR	Central Bank Rate
CIS	Credit Information Sharing
CRB	Credit Reference Bureau
ES	Efficiency Structure
FINTECH	Financial Technology
FSD	Financial Sector Deepening
GDP	Gross Domestic Product
GSMA	Group Speciale Mobile Association
HFG	Health Finance and Governance
IFC	International Finance Corporation
MFI s	Microfinance Institutions
ML	Mobile Lending
MMS	Mobile Money Services
MNO s	Mobile Network Operators
NPL s	Non-performing Loans
NPML s	Non-performing Mobile Loans
SIM	Subscriber Identity Module
SMS	Short Message Services
USA	United States of America

ABSTRACT

The significance of lending in growth and development of the economy is inherent in provision of funding to deficit economic units who engage in productive economic activities. Mobile lending, which is relatively new lending technique to Kenyan lenders, has become a competitive edge for banks. The platform gives lenders easier and wider customer base. Therefore, the present research studied the effect of mobile lending on the quality of bank loan portfolio: A case of selected commercial banks in Kenya. The purpose for this research was to determine the influence of credit information sharing, size of the bank, economic conditions and interest rates on quality of bank loan portfolio as measured by the Non-Performing Loans to Total Loans Ratio. Financial statements were used to collect data from five selected commercial banks offering mobile loans and data analysis involved conducting multiple regression analysis. The research revealed that changes in credit information sharing, size of the bank, economic conditions and interest rates caused a variation of 34.7% on quality of bank loan portfolio. This signaled that 34.7% variation in quality of bank loan portfolio could be related to credit information sharing, size of the bank, economic conditions and interest rates. The study additionally showed a positive strong association amongst interest rates and quality of bank loan portfolio in selected commercial banks in Kenya as indicated by strong positive correlation coefficient. ANOVA results indicated that the general model had a significance value of 0.00% that reveal that the information was perfect for creating an inference as the p-value was less than 0.05. The study also indicated that interest rates had the biggest influence on the quality of bank loan portfolio. The study results lead to a conclusion that interest rates positively affected the quality of bank loan portfolio of the banks. Findings showed that an increase in credit information sharing, size of the bank, economic conditions and interest rates and positively influence the quality of bank loan portfolio of selected commercial banks offering mobile loans, hence the research. The research settles on interest rate as having the highest significance on the quality of bank loan portfolio for commercial banks offering mobile loans. This study recommends that the regulator (CBK) should consult with commercial banks offering mobile loans in determination of lending interest rates since it was found to have the highest influence on the quality of bank loan portfolio.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banks and the banking industry have been transforming gradually in response to innovations in technology, advancement in telecommunication industry and growth in information and communication technology (ICT). Globally, the industry has increasingly become overly competitive and full of operational challenges. This has motivated banks to adopt new strategies to deal with the challenge and reinforce customer satisfaction efforts by developing alternative products and services as well as devising measures directed at operational cost minimization (Shanmugham & Sohail, 2003). Mobile banking and incorporation of the technology both service offering and customer onboarding processes have greatly impacted on the banking operations and customer experience.

The significance of lending in growth and development of the economy is inherent in provision of funding to deficit economic units to engage in productive economic activities. How to recover the money advanced to customers has remained the major disquiet of any lender (Fleisig, 1995). This means that any lending contract carries some level of risk; market risk, credit risk or operational risk. Individual institution's effect of varying risk categories is distinct and is influenced by the institution's area of operation and its environment. Credit risk is the chance the value of the asset portfolio of a bank will change as a result of failure by an obligor to meet the repayment or contractual obligations (CBK, 2005).

Where the lender perceives a risk of default, a higher effective cost of borrowing is imposed since lending institutions attach a risk premium to different borrowers

depending with the perceived risk of default. This is to cover the bank for costs relating to risk analysis, evaluation and mostly for monitoring where chance of default is high (Parlour & Plantin, 2008). Globally, lending is necessitated by existent of financial disequilibrium in the economic system in which a disparity exists between the economic units with deficit funding and those economic units with surplus. Lenders accept deposit from economic units with surplus and lend out to economic units with deficit. Therefore, lending must be designed to benefit the different interest groups including shareholders, depositors and borrowers.

Nwankwo (1990) asserts that lending is the major income-generating component of the assets making the portfolio of majority of commercial banks. Consequently, most banks have ventured into mobile lending and commit substantial amount of resources to evaluate, monitor and manage the quality of mobile loan book. In fact, banking institutions spend substantial amount of money in exploring new business ventures especially those offering opportunity for lending. Provision of credit to customers is certainly the core of banking business (Adedoyin & Sobodun, 1996); therefore, credit administration requires considerable skills and precision by the management in ensuring that credit policies and lending procedures are top notch. The ability to explore and mobilize savings from customers, devise strategic avenues for investing the customer deposits to generate equitable income to pay interest on deposits and sustain liquidity for future loans and advances requires meticulous design and application of sensible lending policies (Menkhoff, Neuberger & Suwanaporn, 2006).

Mobile lending, which is relatively new lending technique to Kenyan lenders, has become a competitive edge for banks. The platform gives lenders easier and wider customer base (Okoth, 2015) since the customers are existing in partnering

telecommunication companies. Majorly, banks partner with telecommunication companies to mobilize deposits and issue mobile loans. Though largely offered in cash, mobile lending technology also involves other non-cash items like solar, electricity, airtime among other products. Credit information sharing, advancement in technology and changing economic conditions has enhanced the effects of this innovation (Ngari & Muiruri, 2014).

Mobile lending technology largely targets the fraction of the population with some earning capability but are unbanked in rural and semi-urban areas. The technological innovations including digital identities, mobile payments and mobile lending has eased operations and reduced banking institutions' operational and administrative cost of credit. Many reviewed literature reveals that mobile lending is faster, cheaper, more reliable, and safer (Jack & Suri, 2011). This study introduced portfolio theory, Credit Market theory and Credit rationing theory and critically assesses their relevance to the concept under the study.

1.1.1 Mobile Lending

Mobile lending is a digital process in which lenders accept deposits in form of virtual accounts maintained by would be borrowers, evaluate potential borrowers and disburse cash or other items capable of being sent to other customers or saved in the virtual accounts or can be withdrawn for personal use. Consumers of mobile lending and the demographics of the product have been changing with time: initial adopters of mobile lending were urban and semi urban dwellers. Jack and Suri (2014) observe that the unbanked rural population who are users of mobile lending has increased overtime. Mobile lending involves the following activities such as savings mobilization where lenders especially commercial banks mostly depend on deposits from savers to accumulate funds. These institutions offer lower rates of interest on

deposits than the lending rate of interest.

There exist substantial factors that influence both internal and external environment which impact on savings mobilization (Byusa, 2016). To tactically and competitively take position capable of attracting additional savings and minimize the effects of competition from other players, banks must devise innovative methods to acquire and retain depositors. Mobile Lending entities require customers to register or opening an electronic account and in most cases require that customers accumulate some savings before they can qualify for a loan limit.

Credit scoring or credit rating is another activity used to determine the credit worthiness of a potential borrower. Lenders attach a score or a rate based on the borrowers' previous borrowing and repayments pattern. This is usually the role of Credit Reference Bureaus (CRBs). Developing countries, Kenya included, are faced with insufficient Credit Reference Bureaus and the ones available are not effective (World Bank, 2016). Additionally, most of the low-income earning populations in such countries lack financial history to be incorporated into credit scoring since; they do not leave transaction trail, most transactions are not in record and credit scoring is limited. Regionally, in Tanzania for instance, barely 6.5 percent of the adult population can be searched in credit bureaus of the country (World Bank, 2016). This is compared to an estimated 80% of adults in developed economies (McKinsey, 2016).

Most lenders partnering with telecommunication companies use the history of phone usage like data usage, airtime purchase, phone calls, text messages and mobile money transactions to evaluate the borrower's credit worthiness. The other feature of mobile lending is electronic loan approval and disbursement. Mobile lending loan approval

and disbursement methods are very fast and convenient since the process is instantaneous and automated. This is mostly possible since the borrowed amounts are small. For example, data shows that M-Shwari loan averages are about Kes 1500 (Cook & McKay, 2015). Monitoring and recovery in mobile lending is enhanced. Conventional lending practices rely mostly on such indicators as delinquency risk rating and non-accrual to determine the quality of loan. Such indicators offer insufficient signals for appropriate corrective action in case risk increases systematically (Clarcke, Cull, Martinez-Peria & Sanchez, 2002).

The oversight of individual loan risk in a portfolio is important for effective portfolio management. Loan risk selection done in a prudent manner is crucial in maintaining good quality loan book. Mobile lenders have both incentives and punishment tactics aimed at reducing the moral hazard as well as induce morale for repayment. For instance, borrowers repaying their M-shwari loans early have higher chance of increasing their approved borrowing limit. Those who fail to pay within 120 days are black listed with CRB.

1.1.2 Quality of Bank Loan Portfolio

Loans and other credit forms the major operating activities for banks making lending an asset that yields highest returns over other assets on banks' statement of financial position thereby forming operating revenue central share. Loan portfolio comprises of combinations of all loans types advanced by a bank. It is the funds that a bank is owed which is usually an asset on the banks' Statement of Financial Position. The portfolio can be classified on the basis of tenor: the loans may be short-tenor loans, medium-tenor loans and long-tenor loans. The longer the term of the loan, the higher the volatility of returns thus the higher the risk.

Further classification based on collateral requirements comprises of secured and unsecured loans, where secured loans includes such loans as house mortgages, motor vehicle loans, loans to purchase piece of land, machinery and other long lived assets. These loan types are considered more secure as the lender charges the property to secure against the repayment volatility. Loans can also be classified as commercial loans or personal loans with commercial loans being further classified into corporate loans and small and medium size enterprise (SME) loans. Here the corporate or business loans may be considered more secure since some businesses are going concern and others have a separate legal life from the investors as opposed to personal loans which are usually dependent in the wellbeing of the individual borrower. The channel of disbursements can also be used as a means of classification of loans; where main loans are disbursed through normal bank accounts and Mobile loans which constitute mobile lending.

The quality of Bank loan portfolio not only depends on the interest rates earned by each loan type but also on the chance that both the expected interest earnings and principal due will be collected in timely manner indicating the quality of each loan type in the portfolio. This means lending involves a lot of risks both to borrowers and lenders (Hamisu, 2011). A failure of the obligor to fulfill his or her contractual commitment on the expected due date puts the banks' business into great jeopardy. A bank that has high lending risk faces higher risk of bankruptcy meaning depositors funds are at risk. According to Owojori, Akintoye and Adidu (2011), liquidated banks in Nigeria was as a result of failure to collect on loans contributing to distress that resulted into liquidation. He noted that 60 of the 115 banks operating in 1995 had non-performing loans to total loans ratio amounting to 67 percent increasing 79

percent and 82 percent in 1996 and 1997 respectively. 35 of the 115 banks had their licenses revoked by December 2002.

1.1.3 Mobile Lending and Quality of Bank Loan Portfolio

Financial sector deregulation presented avenues to meet the demand for loans by a variety of borrowers. The boom time advances in the 1980's, which show large amount of bad credit induced in banks the need to exercise greater caution while issuing loans (Bryant, 1999). Policies and guidelines for credit risk management front clear procedures for analyzing and approving new loans as well as existing credit limit extension. These policies dictate credit monitoring with precise attention, risk control and mitigating steps for associated lending (Basel, 1999).

The assessment, evaluation, analysis and approval process for credit application meant to safeguard a bank's total loan portfolio should be made within tight control systems and procedures. Banks have to decide and set their risk appetite, the criteria to allocate resources optimally and credit costing in order to be competitive in the market.

Advancement in technology and the increase in competition has necessitated banks to crammer into new business ventures to cope with the competition. Moreover, regulations such as interest rate capping has reduced the funded incomes by banks where all borrowers repay their loans at equal interest rates. This means banks cannot load a default risk premium on the risky borrowers leading to increase in probability of losses emanating from bad debts. Banks therefore have resorted to Fintech applications to complement the conventional lending. In Kenya many banks have adopted mobile lending to counter the competition and raise more revenue. The earlier borrowers used to abandon the

SIM cards used for borrowing to avoid repaying. This resulted in alarming rate of default on mobile loans before CRB reports caught up with them.

Conventional lending involves so many procedures, processes, controls and resources which increases the cost of lending and consequently minimizes the return on loan portfolio. Mobile lending in nature requires less of administrative processes and most lenders will charge differently to advance such loan ranging from facility fees of 7.5 percent per loan to a one off 10 percent interest per month. This study therefore pursued an investigative approach into the effect of mobile lending strategies on the quality of banks loan portfolio for selected commercial banks in Kenya.

1.1.4 Commercial Banks in Kenya

According to Central Bank Report, by December 31st 2017, the Kenyan commercial banking comprised the 42 banks and 1 mortgage company with Central Bank of Kenya (CBK) as the regulator. Private ownership accounted for 40 of the 43 banking institutions. 3 of the commercial banks had the Kenyan government as majority owner and of the privately owned banks 25 of the 40 were owned by locals and the remaining 15 had foreign ownership. The locally owned banking institutions were made up of 24 commercial banks and 1 Mortgage Company. Commercial banks owned by foreigners had 11 local subsidiaries of foreign banks and 3 of them were local branches of foreign banks. The sector had total net assets of Ksh.4.0 trillion. The report showed that 22 local private commercial banks (excluding Charterhouse Bank, Imperial Commercial Bank and Chase Bank Ltd) and the 3 local public commercial banks accounted for 64.8 percent and 3.5 percent of total net assets respectively.

Commercial banks purchase treasury bills and bonds issued by the government as a source of funding and to manage inflation. CBK is the lender of last resort to banks

thus banks access the funds from CBK at a certain rate of interest which then influences the rate of interest at which commercial banks lend customers. CBK, (2011) cited credit risk as major concern affecting 95 percent of the banking institutions in Kenya. Whereas market risk can be mitigated or minimized using hedging credit risk has posed a challenge to many banking institutions (Gonzalez-Paramo, 2010). The CBK, (2011) reported that the banking the sector majorly used the traditional model where collateral is the main credit risk mitigation technique.

According to CBK (2017), pre-tax profits declined by 9.6 percent in the year 2017. The ratio of non-performing loans to total loans increased to 12.3 percent in 2017 up from 9.3 percent in 2016. Solid capitalization as a result of capital injection and retained earnings was recorded over the period. Household, Trade, Manufacturing and Real Estate Sectors formed the major share of the sector loans and advances which accounted an increase from 70.89 in 2016 to 73.08 percent of total loans in 2017.

Trade, Households and Real Estate sectors had the highest number of loan accounts totaling to 97.61 percent. There was a decline in the normal loans category in 2017 to Kes 1, 635,220 billion, a 10.38 percent dip from Ksh.1, 824.7 billion in 2016. 75.6 percent of the loans in 2017 was from normal loan category compared to 79.6 percent in 2016. This points at worsening asset quality of banking sector in the 2017. There was a 1.8 percent increase in loans and advances on lookout category, 39.6 percent doubtful category and 21.1 percent loss in categories. The watch, doubtful and loss categories accounted for 12.1 percent, 8.1 percent and 1.9 percent of the loan book in 2017 compared to 11.1 percent, 5.5 percent and 1.5 percent in 2016 (CBK Annual Report, 2017).

1.2 Research Problem

Is Mobile Lending an opportunity or a cost that banks have to contend with to remain technologically relevant? The fact that bank loans are the major assets makes risk from credit the highest ranking risk for most banks. Mitigation measures to transfer, reduce and absorb lending risks is thus of cardinal importance. Conventional lending leverages on guarantees and collateral security as a means of risk reduction. These are pre-lending considerations where loan applications are appraised and those that do not pass the set criterion are declined. There were cases where borrowers colluded with valuers to overstate the property values such that in event of default, the charged property cannot sufficiently cover the loan balance outstanding. Banks should embark on proper monitoring procedure that can detect changes in collateral value, repayment ability as well as the total value of the loan and portfolio quality (Radevic & Ahmedin, 2010).

Mobile lending is far from this conventional lending practice. First, the loan application process, approval and disbursement are almost real-time. Secondly, appraisal of mobile loan application is automated since mobile lending process depends on historical customer data to generate credit scores. Thirdly, loans processing does not require branch visits by the customer. Finally, Mobile lending decisions deduce from analysis of electronic data as opposed to the conventional credit analysis and scoring. The problem is, in developing countries, majority of the population lack credit scores owing to underdeveloped credit bureaus and the fact that the target market consists of people who do not have financial transaction history that lenders can verify. This limits the effectiveness and efficiency of the model since the lender is faced with difficulties in conducting due diligence and Know Your Customer (KYC) procedures. Moreover, overdependence of telecommunication data

means that if due diligence is not properly done, the impact will be felt by lenders where failure to repay loans results in direct loss. This risk greatly impacts on the quality of bank loan Portfolio.

In the international scene, the United States for instance, lending to small businesses referred to as microcredit has faced a crisis. The foregoing studies raised the question on whether there existed a credit gap relative to small business lending (McCarthy & Mills, 2014). One of the challenges facing this sector is the emergence of dynamic market of online lenders who are employing technology with the view of disrupting the small business lending market. Their comparatively small size notwithstanding, the online lenders provide fast turnaround and online accessibility for borrowers. These lenders use customer data to deduce a more precise credit scoring algorithms. The new entrants to lending markets have realized that the small business lending has continuously shrunk. Going by the study by McCarthy and Mills, (2014) the proportion of business lending reduced from 50 percent in 1995 to 30 percent in 2012. Generally, banks face the probability of default by borrowers who may not need subsequent financing.

There has been several research studies on credit and commercial banks in Kenya (Onyango, Ntale & Githui, 2018) studied the effects of Mobile Banking on Bank Portfolio in Commercial Banks; Murunga (2017) studied the effect of mobile-based lending process on non-performing loans; Nzayisenga (2018) sought to explain how bank's financial performance was impacted by mobile lending; Aduda and Kingoo in 2012 investigated the association between credit risk management and profitability banks in Kenya and in 2010, Gitonga investigated the interest rate, risk management and their effect on the profitability of commercial banks while Mbotu conducted a

study on Central Bank of Kenya rate (CBR) and its effects on the benchmark lending interest rates for commercial banks. From the studies reviewed, there are key research gaps emanating from analysis of the matters examined throughout the chapter. Firstly, there is no unanimity on the significance of mobile lending on banks' performances, where some studies found a direct relationship existing between mobile lending and bank's performance while some found existence of a negative relationship between these same variables.

Conceptual, contextual and methodological research gaps will be addressed in this study. The contextual gap in that mobile lending on banks' loan portfolio concept has not been sufficiently studied. The conceptual gaps include lack of unanimity on the effect of lending on bank loan portfolio and inconclusiveness of the effect of lending on bank performance. This study investigated more in the context of commercial banks in Kenya and introduced mobile lending and banks' loan portfolio as the independent and dependent variables. This study introduces Economic factors, Interest Rate, Credit Information Sharing and Size of the bank as independent variables in an attempt to explain further the relationship between mobile lending and the quality of bank loan portfolio. The objective of the study was to pursue the answer to the question: Is there any effect of mobile lending on the quality of bank loan portfolio?

1.3 Research Objective

The objective of this study was to determine the effect of Mobile lending on the quality of bank loans portfolio in Commercial banks in Kenya.

1.4 Value of the Study

The value of the findings of the study to banks is ability to establish the best lending options and lending behavior for the quality of loan books and to appreciate the banks' contribution to the country's economic growth and development. Through the findings of the study, banks gain more understanding on various environmental factors affecting mobile lending and strategize to reap maximum portfolio returns.

To the stakeholders including bank customers' who shall benefit from the study to obtain clarity on the causes of changes in the cost of borrowing which informs decisions pertaining to their borrowing. The government gains in-depth understanding into the impact government policies on interest rate and mobile lending policies on commercial banks. The government-banks partnerships ensure interest rates, prices and stability in exchange rates which enhance economic growth and development through issuing of cheap credit.

To researchers and scholars, this forms a basis for further research on the topic offering knowledge pool on the impact of digital credit and mobile lending on loans portfolio in commercial banks in Kenya hence can serve as academic reference material.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter covers theoretical review, factors affecting mobile lending in Kenya, empirical review associated with the research objective and finally the conceptual framework.

2.2 Theoretical Review

An investigation of literature on theories of lending suggests that theories are categorized according to the nature of relationships between the borrower and lender. Thus this study assessed Portfolio Theory, Credit Market Theory and Credit Rationing Theory and their applicability in the context.

2.2.1 Portfolio Theory

Many companies use value at risk models to manage exposure to interest rate and market risk. Despite the fact that credit risk remains the highest risk to most banks, Margrabe (2007) observes that use of modern portfolio theory to manage credit risk has lagged. According to portfolio theory, the return of an asset is a random variable and portfolio return is the weighted average return on a combination of assets and portfolio risk is the standard deviation from the expected returns of such portfolio. Banks appreciate the effects of credit concentrations on financial performance. Many banks are thus actively accepting quantitative approaches in credit risk measurement. Banks have made significant advancement toward designing credit risk measurement tools that functions in a portfolio context. Risk transfers have also been efficiently undertaken using credit derivatives while retaining customer relationships. Kairu,

(2009) noted that banks have incorporated productivity indicators and Portfolio quality ratios into their credit management.

According to Mason and Roger (1998) banks continuously seek to complement the asset-by-asset approach with portfolio view using a Portfolio Model. This theory assumes that only the risk of default and thus the volatility of expected return on the loan portfolio is major concern to banks. The theory is applicable in this study in that banks seek to balance the proportion of funds that are committed to various lending categories based on perceived risk of default and the expected return.

2.2.2 Credit Market Theory

This is a neoclassical theory. Credit Market Theory hypothesizes that lending terms clears the market. That is to say that if collateral and other relatable restrictions are assumed to be constant, then the rate of lending only will define the amount of loans issued by the banks. The increase in demand for loans and a static supply of loan funding leads to increase in interest rates. An increase in risk to a bank funded project should be reflected through a risk premium over the lending rate to hedge against increased risk of default. Ewert, Szczesmy and Schenk (2000) observes that there exists a positive relationship between the perceived probability of default and the interest rate on the loan issued to borrowers; that is, the higher the default risks of the borrower, the higher the premium.

The effect of collateral on the risk premium is not clearly discussed by the theory, though it intimates that collateral affects lending rate such that a high risk borrower wishing to borrow at lending rate equal to a borrower with a lower default risk should pledge extra collateral to adjust his risk profile downwards to a lower risk premium. This gives rise to a situation referred to as moral hazard and adverse

selection phenomena. There exists information asymmetry between lenders and borrowers where in most cases borrowers can assess their investments more accurately to a level unknown to lenders. Borrowers may perform undisclosed actions that may increase the risk of their investments that is not known to the lenders. To shield themselves from the risk of default lenders increase their rates of lending meaning they attract only borrowers with high risk profile and eliminate those with low risk resulting to the problem of adverse selection (Mason & Roger, 1998). The theory of Credit Markets is applicable in this study in that there is a lot of information asymmetry where mobile lenders depend on third parties to evaluate borrowers.

2.2.3 Credit Rationing Theory

Introduced by Freimer and Gordon (1965), credit rationing theory was expanded by Stiglitz and Weiss (1981). It postulates that information asymmetry result into credit rationing due to inability of lenders to distinguish between good from bad borrowers. Such information asymmetry in lending markets may result in over- lending. Banks evaluate customers and monitor their financial and ethical soundness before approving a loan. This involves gathering private customer information, (Freixas & Rochet, 1999) treating it and owning strategic information on incomes and expenditures of borrowers and their progress (Diamond & Rajan, 2001).

Nonetheless, the connection between lenders and borrowers according to Freixas and Rochet, (1999) is not perfect since lenders are exposed due to informational asymmetries. Stiglitz and Weiss (1981) demonstrated that where lenders issue loans at the same interest rate to all borrowers citing inability to put a distinction between borrower categories may lead to credit rationing. Low-risk borrowers engage in low risk investments which yield a lower rate of return. Such borrowers are likely to be

less wealthy compared to high-risk borrowers in the long run. Borrowers perceived to be low-risk, cannot afford additional collateral, hence requirement of increased collateral results in adverse selection effect. Owino, (2014) observes that lenders mainly engage contracts where they can simultaneously adjust interest rates as well as the collateral requirements if need arise.

2.3 Determinants of the Quality of Bank Loan Portfolio

2.3.1 Credit Information Sharing

Credit information sharing (CIS) also known as credit reporting can be defined as a process in which banks and other lenders share their borrowers' information with Credit Reference Bureaus (CRBs) who then share the consolidated information with all lenders. This information enables banks to evaluate potential borrowers and their loan repayment behavior. According to Kairu and Amandi (2014), CIS creates an inducement for defaulters to pay the delinquent debts. Conventional information sharing via Public Credit Registers or Credit Reference Bureaus is used by over 100 countries globally (World Bank, 2009). Availability of this information reduced the information asymmetry and problem of adverse selection, reduces risk of default and promotes responsible credit culture (World Bank, 2011). In Kenya, Credit Information Sharing is done through Credit Reference Bureau (CRB) regulations of 2008. This regulation oversees licensing, operation and supervision of CRBs by CBK (Loannidou & Penas, 2010).

CIS attempts to solve adverse selection and moral hazard effect by collecting, filing and distributing credit information supplied by members (Houston, Lin & Ma, 2010). Three CRBs have been licensed and operates in Kenya. Credit info Limited, Credit Reference Bureau Africa Limited and Metropol Limited (CBK, 2015). CIS can either

be voluntary or imposed by regulations (Japelli & Pagano, 2000). The sharing of information enhances debtors' reputation collateral in form of a credit score. These scores provide useful information to the market and portray a borrower's credit worthiness to lenders (Kerage & Jagongo, 2014). The loan allocation and the loan portfolio of any individual financial institution e.g. commercial banks will be dictated by lending decisions. The information sharing enables banks to identify serial defaulters and the time of lending thus may assist in improving the quality of loan books.

2.3.2 Economic Conditions

Empirical evidence has revealed a significant positive relationship between growth in gross domestic product (GDP) and quality of loan portfolio (Louzis, Vouldis & Metaxas, 2011). The relationship evident on the literature reveals that growth in GDP improves the per capita income which enhances the loan repayment ability of borrowers thus better quality of loan book and vice versa (Khemraj & Pasha, 2009). This research seeks to evaluate the effect of growth in GDP on the quality of bank loan portfolio for selected commercial banks in Kenya.

2.3.3 Bank Size

The nature, size, and the structure of loan portfolio are a reflection of banks' ability to lend to the borrowers. This is very vital in determining the niche market in which to lend. It also constraints the potential market for borrowers, where large banks can attach institutional borrowers and financing large projects. Such borrowers have better collateral security to pledge for loans and can secure guarantees from more reputable guarantors making their riskiness lower and their loans better quality. Smaller banks suffer limited geographical coverage thus lending decision will differ from Multinational Bank's lending decisions. The small banks should therefore

consider their local market and immediate environment when mapping the lending decisions. Multinationals will consider a wider environment (George & Simonson, 2000). This means larger banks can operate regionally and internationally attracting only the high net worth customers. This research seeks to estimate the effect of size of the bank on the quality of banks loan portfolio.

2.3.4 Interest Rate

Kenya imposed a cap on interest rates chargeable on bank loans as from August 2016. To analyze the effect of the cap on loans the study keenly considered 24 months before the interest rate capping and compared the reports by banks between the periods prior and after the capping. By September 2017, it was one-year since introduction of the interest rate capping and an analysis of data between the periods was done to determine the effect of interest rates the quality of bank loan portfolio for selected commercial banks in Kenya.

2.4 Empirical Literature

Lending activities of various commercial banks has been immensely reviewed by various researchers among them deliberations on the factors influencing banks appetite to lend to some but not other sectors of the economy, while other studies discoursed to the effect of lending output and productivity. Haneef et al. (2012) focusing on five commercial banks in Pakistan sought to examine the influence of risk management on non-performing loans on the profitability of banks in Pakistan. Using secondary data only the findings of the study point to the fact that commercial banks were deficient of risk management mechanisms in Pakistan, which was a threat to profitability. The policies and procedures of the risk management nascent stage of the banks was recommended to have effective monitoring since poor monitoring

means low quality credit which might spark huge capital losses.

Geletta (2012) conducted an enquiry involving 11 commercial banks in Ethiopia to investigate the determinants of the levels of non-performing loans. Targeting commercial banks with both public and private ownership, the study used primary data mainly the questionnaire physically distributed to 150 employees of the banks working in roles involving lending 137 of which were completed and collected making a 91.30 percent response rate. The findings indicated that, unlike macroeconomic determinants, bank specific factors varied since each bank was unique in various ways. The findings also indicated that some factors including integrity, financing, business failures, diversification of credit portfolio and willful default also contributed to the levels of non-performing loans and thus affecting the profitability of commercial banks in Ethiopia.

Chernykh and Theodossiou (2011), using bank information consisting of 881 banks conducted an inquiry into the determinants of long-term lending to emerging market companies by banks in Russia. They included risk taking, managerial expertise, bank size, ownership type, liability structure and capitalization as variables. The review of their findings show capitalization and the size of the bank (by assets) were the only determinants of long-term loans. Ewert, Szczesmy and Schenk (2000), studied the determinants of the performance of bank lending in Germany. He used credit file data consisting of 260 medium-sized firm borrowers in the period 1992 through to 1998. The aim of the study was to test several theories on collateral requirements to interest rate premiums and consequently the lending performance. The finding of the study was that rise in the collateral pledged lead to increase in interest rate premium, contrary to the earlier discussed theories which support charging of higher interest rate premium to customers pledging less collateral. Therefore, the study yielded

controversial finding indicating that riskier loans are assigned lower interest rate premiums by commercial banks.

In a study to examine the factors influencing the lending behavior of banks in Nigerian Olokoyo, (2011) considers variables like lending rate, volume of deposits, investment portfolio; exchange rate, minimum reserve ratio, GDP and liquidity ratio in the period 1980 through to 2005. Notable, the coefficients of volume of deposits, foreign exchange rate, investment portfolio and liquidity ratio, the vector error correction estimates indicated a significant effect on the lending volumes. On the other hand, the vector error correction estimates for the coefficients of minimum cash reserve ratio and lending rate were insignificant. This signifies that instruments of monetary policy have no effect on the volumes of bank lending in Nigeria.

Bichanga and Aseyo (2013) studied the causes of loan default in microfinance institutions (MFIs) in Trans-Nzoia County in Kenya. The study focused on MFIs and borrowers from Trans-Nzoia County. The findings indicated that delays by banks in processing and disbursement of loans contributed to default. This was attributed to delays in the commencement of the intended projects by the borrowers some of which failed in totality. Moreover, the study found that repayments of loans delayed by between one and two weeks as a result of delays from the MFIs.

A study by Moti, Masinde, Mugenda and Sindani (2012) focusing on the microfinance sector in Kenya sought to analyze the effectiveness of credit management system (CMS) on the performance of loans. In the findings, which concurred that MFIs in Kenya faces a great magnitude of loan default which affected their capacity and financial sustainability? Majority of the surveyed MFIs had systems in place to monitor arrears and ensure effective loan collection. The finds further

indicated that despite the presence of arrear monitoring systems in visibly all MFIs, there still existed high levels of NPLs which was a pointer to ineffectiveness of these systems to control the NPLs. It could also be an indicator of systems that are not fully or properly implemented.

An assessment by Ochami (2004), of factors contributing to non-performing loans in Housing Finance Company of Kenya, used primary data collected by use of a structured questionnaire administered on the Housing Finance Company of Kenya staff members. The study used deductive analysis was done using descriptive statistics and tabulated data which would indicate the factors that contribute to the default of loans in Housing Company Kenya. From the assessment, it was found that internal credit risk management as well as external environment majorly contributed to the level of non-performing loans.

A study conducted by Waweru (2009), to investigate the causes and remedies for the crisis affecting commercial banking in Kenya established that many financial institutions which had collapsed from 1986 to 2009 had non-performing loans as the major factor. The study used 10 largest banks in Kenya at the time and with a sample of 30 managers selected from the banks. The findings indicated that economic meltdown was considered the most significant external factor contributing to the crisis. Loan application process came in second with failure by borrowers to disclose vital information taking the highest contributor of failures emanating from application process. Further findings indicated that poor debt collection strategy was the main bank specific contributor to the loan default in Kenya.

Warue (2010), analyzed the effects of macroeconomic and bank specific factors on non-performing loans on commercial banks in Kenya. The study sought to investigate

the link between the macroeconomic factors, bank-specific factors and NPLs as well as the extent at which these factors impact on loans in commercial banks in Kenya. Both Pooled panel and fixed effect panel of econometric approach were used. The findings indicated evidence of significant relationship between per capita income and NPL levels in virtually all categories of bank sizes. The study did not consider any borrower specific factors like purpose of the loan, age and level of education.

2.5 Conceptual Framework

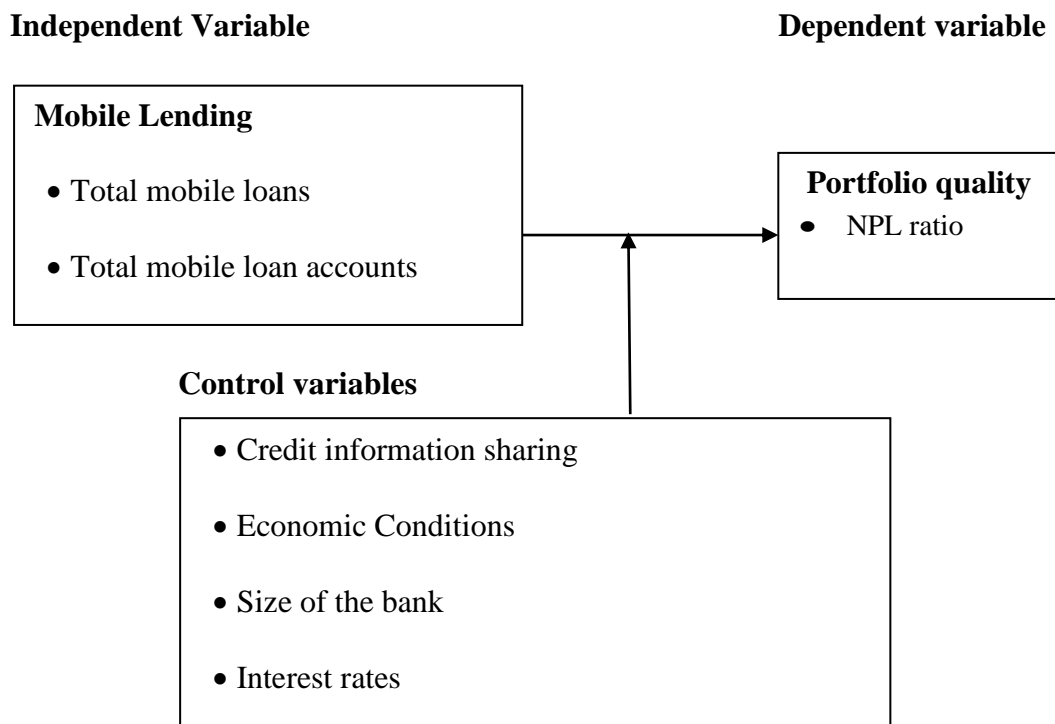


Figure 2.1: Conceptual Framework

Source: Researcher’s own conceptualization (2018)

2.6 Summary of Literature Review

This study sought to address several contextual research gaps, a number of conceptual gaps and methodological gaps. The contextual gap in that mobile lending on banks’ loan portfolio concepts had not been sufficiently studied in the context of Kenya as addressed by this study. Lack of unanimity on the effect

lending effect on bank loan portfolio and inconclusiveness of the effect of lending on bank performance constituted the conceptual gaps. This study also sought to investigate further by looking to mobile lending and quality of banks loan portfolio. The study introduced Credit Information Sharing, Bank Size, Interest Rates and Economic factors in an attempt to explain further the relationship between mobile lending and quality of banks loan portfolio.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The steps followed in the study are outlined in this Chapter. The plan of research and how data was collected, analyzed and presented is covered. Basically, the chapter covers the design of the research, the target population, data collection and how analysis of data was carried out.

3.2 Research Design

Descriptive research design was adopted since the study sought to profile the relationship between mobile lending and quality of loan portfolio issued by selected commercial banks in Kenya which was generalized to a larger population. Mugenda and Mugenda (2003), expounds on this type of research design as a systematic yet an empirical investigation where manifestation of the independent variables has either already occurred or cannot be manipulated thus the researcher did not have a direct control. Such study looks into aspects of what the phenomenon is, where it is and how the phenomenon is hence build a profile on such phenomenon (Mugenda & Mugenda, 2003).

3.3 Target Population and Sample Size

Target Population is a cumulative or totality of all the items with members that exhibit a set of specifications or an entire group of items that contains at least one common (Polit & Hungler, 1992). Therefore, population denotes a group of items, objects or people from which a sample or samples are obtained. For the purposes of this study, the target population was all the 43 commercial with a sample size

consisting of 5 commercial banks offering mobile loan Kenya (KCB, Equity Bank Limited, Commercial Bank of Africa, Barclays Bank of Kenya and Cooperative Bank Limited) all operating in Kenya by September 2017 since they are the leading in mobile lending in the banking industry in Kenya today.

3.4 Data Collection

The study used secondary data which was collected from Central Bank of Kenya (CBK) supervisory reports, individual banks' published financial statements and from the annual reports of the Communications Authority of Kenya (CAK). Data collection sheet were used for recording the data which was then edited, followed by data coding and data cleaning. The data covered the period between 2013 and 2017. Aggregate annual data was used in the study as it was the only available data both from the Central Bank of Kenya (CBK) supervisory reports and the annual reports from the Communications Authority of Kenya (CAK). Limited bank specific data was available as banks do not publish this data publicly. All efforts were made to get this data from specific banks under study especially data on mobile lending volumes and non-performing components to complement the data obtained from the CAK.

3.5 The Analytical Model

The following analytical model was applied in testing the connection between mobile lending and bank loan portfolio of commercial banks in Kenya. Mobile lending (Independent Variable) X_{1-p} , Quality of bank loan portfolio (Dependent Variable) Y , in commercial banks in Kenya, thus the following model was used:

$$\text{Bank loan portfolio (Y)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \dots + \beta_p X_p + \varepsilon$$

Where;

Y Dependent Variable Non-Performing Loan Ratio (NPL / Total Loans)

β_0 Regression constant or intercept

β_{1-i} Coefficients of change on Y induced by each change in X_i

ε_i error term

X_{1-i} are independent variables (determinants of quality of Bank portfolio).

In comparison of the performance of different categories of bank loan portfolio of commercial banks, the research carried out analysis of the below factors which affect the relationship between mobile lending and the quality of bank loan portfolio.

- X_1 Credit Information Sharing (Number of Credit Reference Bureau enquiries made by commercial banks in Kenya)
- X_2 Size of the bank (Log of Total Assets)
- X_3 Economic Conditions - Natural Logarithm of GDP measured by the aggregate value of national output
- X_4 Interest rates measured by average annual lending rate over the period under study

3.6 Tests of Significance

To test for the strength of the model and the relationship between mobile lending and the quality of bank loan portfolio the researcher conducted various tests on the data obtained for variables including linearity tests, normality tests, correlation coefficient, and test for homoscedasticity. Further the researcher conducted an Analysis of Variance (ANOVA). The significance of each independent variable was also tested. Fischer distribution test commonly referred to as F-test was used to test the significance of the overall model at a 95 percent confidence level.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This section presents the interpretation of findings from regression analysis done as well as the findings of analysis of the effect of mobile lending on the quality of bank loan portfolio: a case of selected commercial banks in Kenya. Regression was conducted on the data from 5 commercial banks offering mobile loan in Kenya (KCB, Equity Bank Limited, Commercial Bank of Africa, Barclays Bank of Kenya and Cooperative Bank Limited). This study used secondary data which ranged from 2013 to 2017. The quality of bank loan portfolio of each bank were related on the independent variables which were four (Credit Information Sharing, Size of the bank, Economic Conditions and Interest rates so as to examine the models.

4.2 Research Findings

The descriptive statistics and inferential analysis using multiple regression is presented in this section.

4.3 Descriptive Statistics

Table 4.1 indicates the statistics in descriptive and distribution of the constructs considered in this research: credit information sharing, size of the bank, economic conditions and interest rates. The descriptive statistic considered were maximum, minimum, skewness and kurtosis, standard deviation and mean.

Table 4.1: Descriptive Statistics (Average 2013-2017)

	Std.							
	Minimum	Maximum	Mean	Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Error	Statistic	Error
Credit Information sharing	.2635	.2894	.282206	.0065645	-.994	.374	.321	.733
Size of the bank	.2761	.3877	.325326	.0240045	.995	.374	1.396	.733
Economic Conditions	.1061	.1502	.119842	.0078701	1.563	.374	4.800	.733
Interest rates	.2987	.5026	.406816	.0579022	-.279	.374	-.768	.733
Quality of bank loan portfolio			.1502					
Valid N (listwise)								

Table 4.1 shows that credit information sharing indicated .282206 of mean and standard deviation of .0065645. Economic conditions, on average, .119842 across all the years under study. Mean value of size of the bank was .325326 which denotes that it averagely all the firms under the study period. Furthermore, on average the interest rates in all the five years under study was .406816 meaning that the 5 commercial banks offering mobile loan Kenya for the period under study had interest rates on an average. Further the mean for quality of bank loan portfolio of the banks was .1502 on average meaning that the quality of bank loan portfolio for banks under study was relatively poor.

4.4 Correlation Analysis

The degree of association between variables under consideration that is independent variables (Credit information sharing, Size of the bank, Economic conditions, Interest rates) and the dependent variable (Quality of bank loan portfolio) was measured using

Pearson correlation. This correlation has a coefficient range between -1 and +1. Negative correlation is indicated by negative values while positive values is an indication of positive correlation. Pearson correlation coefficient less than 0.3 indicates weak correlation, between 0.3 and 0.5 correlation coefficient indicates moderate correlation while correlation coefficient above 0.5 indicates strong correlation. Table 4.2 shows the results of the study.

Table 4.2: Correlations

		CIS	SB	EC	IR	QBLP
CIS	Pearson Correlation	1				
	Sig. (2-tailed)					
SB	N	40				
	Pearson Correlation	.099	1			
EC	Sig. (2-tailed)	.204				
	N	40	40			
IR	Pearson Correlation	.586**	.092	1		
	Sig. (2-tailed)	.000	.237			
QBLP	N	40	40	40		
	Pearson Correlation	.704**	.296**	.704**	1	
QBLP	Sig. (2-tailed)	.000	.000	.000		
	N	40	40	40	40	
QBLP	Pearson Correlation	.529**	.225**	.453**	.588**	1
	Sig. (2-tailed)	.000	.003	.000	.000	
QBLP	N	40	40	40	40	40

** . Correlation is significant at the 0.01 level (2-tailed).

NB: CIS - Credit information sharing, SB - Size of the bank, EC - Economic conditions, IR - Interest rates, QBLP - Quality of bank loan portfolio

The above analysis indicates interest rate having the strongest positive effect on quality of bank loan portfolio with a correlation coefficient of 0.588 and $P < 0.01$. This suggests a statistically significant relationship. Credit information sharing also has the strong positive influence on quality of bank loan portfolio with a correlation coefficient of 0.529 and $P < 0.01$ suggesting a statistically significant relationship.

Economic conditions are positively correlated to quality of bank loan portfolio with a correlation coefficient of 0.453 and $P < 0.01$) suggesting a statistically significant relationship though the association is moderate. The relationship between size of the bank and quality of bank loan portfolio is weak but statistically significant (Pearson correlation = .225 and $P < 0.01$) implying that size of the bank alone does not influence the quality of bank loan portfolio. The results in the correlation matrix imply that the credit information sharing and interest rate are very crucial determinants of quality of bank loan portfolio, followed by economic conditions and lastly size of the bank though the relationship between size of the bank and quality of bank loan portfolio is weak.

4.5 Regression Analysis

In order to examine effect of mobile lending; credit information sharing, size of the bank, economic conditions and interest rates significantly on quality of bank loan portfolio, this study performed a multiple regression.

Table 4.3: Summary of Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.602 ^a	.362	.347	5.43019

a. Predictors: (Constant), Credit information sharing, Size of the bank, Economic conditions, Interest rates

Through checking the adjusted R squared coefficient of determination, the deviation of dependent construct owing towards variations in independent variable was revealed. From the results, the adjusted R squared was 0.313, this indicates that there was variation of 36.2% on quality of bank loan portfolio because of changes in credit information sharing, size of the bank, economic conditions and interest rates at 95% confidence interval. This reveals 34.7% variation in quality of

bank loan portfolio of the five commercial banks offering mobile loan in Kenya might be because of credit information sharing, size of the bank, economic conditions and interest rates. The relationship between the variables of the study was shown by R which is the correlation coefficient. The research revealed a positive relationship among the research construct as revealed through 0.602.

Table 4.4: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2715.602	4	678.901	23.024	.000 ^b
	Residual	4776.889	35	29.487		
	Total	7492.491	39			

a. Dependent Variable: Quality of bank loan portfolio

b. Predictors: (Constant), Credit information sharing, Size of the bank, Economic conditions and Interest rates

Table 4.4, shows that from the ANOVA the study variables, a significance level of 0.000 that indicated that the information was appropriate for inference making on the populations parameter as the (p-value) which shows significance was smaller than 5%. The F critical was 23.0243 at 5% level of significance. Subsequently the F critical (22.323) was less than F calculated, this showed the general model was substantial and that credit information sharing, size of the bank, economic conditions and interest rates significantly affected quality of bank loan portfolio.

Table 4.5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.468	3.155		9.024	.000
	Credit information sharing	.144	.090	.151	2.606	.011
	Size of the bank	.075	.059	.085	2.262	.020
	Economic conditions	.044	.075	.055	.592	.035
	Interest rates	.325	.084	.418	3.884	.000

a. Dependent Variable: Quality of bank loan portfolio
The equation is thus as shown below:

$$Y = 1.468 + 0.144 X_1 + 0.075 X_2 + 0.044X_3 + 0.325X_4$$

The findings from regression equation revealed that maintaining credit information sharing, size of the bank, economic conditions and interest rates, quality of bank loan portfolio of commercial banks offering mobile loan in Kenya was 1.468. A change of a unit in credit information sharing results to increase in the quality of bank loan portfolio by a factor of 0.144. A change of one unit in size of the bank make an increase in the quality of bank loan portfolio at the commercial banks offering mobile loan in Kenya by 0.075, one step increase in economic conditions results to increase in the quality of bank loan portfolio by 0.044 and one step increase in interest rates results to increase in the quality of bank loan portfolio by 0.325.

At 95% level of confidence and 5% level of significance, size of the bank was 0.020 level of insignificance; Credit information sharing revealed a 0.011 significance, economic conditions indicated 0.035 significance level and interest rates indicated 0.000 significance level. Therefore, interest rate was most

significant. Generally, interest rates had the highest influence on the quality of bank loan portfolio, size of the bank, economic conditions and credit information sharing also had significant influence on the quality of bank loan portfolio, but not as much as interest rates.

4.6 Findings Interpretation

The research results revealed a change of 34.7% on quality of bank loan portfolio of commercial banks offering mobile loan in Kenya as a results of changes in credit information sharing, size of the bank, economic conditions and interest rates. This shows that 34.7% change in quality of bank loan portfolio could be accounted for by credit information sharing, size of the bank, economic conditions and interest rates. The study also indicated a positive strong relationship between credit information sharing, size of the bank, economic conditions and interest rates and quality of bank loan portfolio as indicated by correlation coefficient being positive.

The study of alteration of the findings of the research revealed the general model showed a significance of 0.6% that showed that the information was perfect for generating conclusion on the parameter of sample as the significance was less than 0.05. The study again indicated that credit information sharing, size of the bank, economic conditions and interest rates significantly influences the quality of bank loan portfolio. The resultant equation of regression was;

$$Y = 1.468 + 0.144 X_1 + 0.075 X_2 + 0.044X_3+ 0.325X_4$$

The regression revealed that putting credit information sharing, size of the bank, economic conditions and interest rates to a constant zero meant that quality of bank loan portfolio would be at 1.468. The research indicated a positive relationship between credit information sharing, size of the bank, economic conditions and

interest rates and results in quality of bank loan portfolio. All the variables revealed to significantly influence quality of bank loan portfolio of commercial banks offering mobile loan in Kenya.

The study findings agree with Kairu and Amandi (2014), who indicated that CIS creates an inducement for defaulters to pay the delinquent debts. Conventional information sharing via Public Credit Registers or Credit Reference Bureaus is used by over 100 countries globally (World Bank, 2009). Availability of this information reduced the information asymmetry and problem of adverse selection, reduces risk of default and promotes responsible credit culture (World Bank, 2011). In Kenya, Credit Information Sharing is done through Credit Reference Bureau (CRB) regulations of 2008. This regulation oversees licensing, operation and supervision of CRBs by CBK (Loannidou & Penas, 2010).

In a study to examine the factors influencing the lending behavior of banks in Nigerian Olokoyo, (2011) considers variables like lending rate, volume of deposits, investment portfolio; exchange rate, minimum reserve ratio, GDP and liquidity ratio in the period 1980 through to 2005. Notable, the coefficients of volume of deposits, foreign exchange rate, investment portfolio and liquidity ratio, the vector error correction estimates indicated a significant effect on the lending volumes. On the other hand, the vector error correction estimates for the coefficients of minimum cash reserve ratio and lending rate were insignificant. This signifies that instruments of monetary policy have no effect on the volumes of bank lending in Nigeria.

Warue (2010), analyzed the effects of macroeconomic and bank specific factors on non-performing loans on commercial banks in Kenya. The study sought to

investigate the link between the macroeconomic factors, bank-specific factors and NPLs as well as the extent at which these factors impact on loans in commercial banks in Kenya. Both Pooled panel and fixed effect panel of econometric approach were used. The finds indicated evidence of significant relationship between per capita income and NPL levels in virtually all categories of bank sizes. The study did not consider any borrower specific factors like purpose of the loan, age and level of education.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study results after interpretation led to the following conclusion and recommendations. The presentation is founded by the study objectives. The study intended to find out the effect of mobile lending on the quality of bank loan portfolio: a case of selected commercial banks in Kenya.

5.2 Summary

This research endeavored to determine the ways mobile lending affect quality of bank loan portfolio in commercial banks. Multiple regression analysis was done using information collected from the five commercial banks' financial statements. The regression revealed that changes in credit information sharing, size of the bank, economic conditions and interest rates caused a variation of 34.7% on quality of bank loan portfolio. This signaled that 34.7% variation in quality of bank loan portfolio could be related to credit information sharing, size of the bank, economic conditions and interest rates. The study additionally showed a positive strong association amongst interest rates and quality of bank loan portfolio in selected commercial banks in Kenya as indicated by strong positive correlation coefficient. ANOVA results indicated that the general model had a significance value of 0.00% that reveal that the information was perfect for creating an inference as the p value was less than 0.05. The study also indicated that interest rates had the biggest influence on the quality of bank loan portfolio.

Regression equation indicated that putting credit information sharing, size of the bank, economic conditions and interest rates at a zero constant, quality of bank loan portfolio of selected commercial banks in Kenya will be at 1.468. The research indicated a positive relationship between credit information sharing, size of the bank, economic conditions and interest rates and quality of bank loan portfolio.

5.3 Conclusion

The study results showed that interest rates positively affected the quality of bank loan portfolio of the banks, therefore the research settles that mobile lending positively influences quality of bank loan portfolio of the selected commercial banks offering mobile loans.

Findings showed that an increase in credit information sharing, size of the bank, economic conditions and interest rates positively influence the quality of bank loan portfolio of selected commercial banks offering mobile loans. The research settles on interest rate as having the highest significance on the quality of bank loan portfolio for commercial banks offering mobile loans.

5.4 Recommendations for Policy

These study findings lead to recommendation that it is necessary for the regulator (CBK) to consult with commercial banks offering mobile loans in determination of lending interest rates since it was found to have the highest influence on the quality of bank loan portfolio.

It is essential for selected commercial banks offering mobile loans to make sure there is credit information sharing in order to motivate customers to pay their mobile loans promptly since it was found to positively influence quality of bank loan portfolio.

5.5 Limitations of the Study

In achieving the objectives, the study covered 5-year period as from the year 2013 to 2017. Secondary data was used and collected from the financial statements and five commercial banks. The research was restricted to the rate of accuracy of the information got from the financial statements. The information is verifiable because it was from the financial statements and the five selected commercial banks, it might be disposed to these deficiencies.

The research covered a duration of 5 years from 2013 to 2017. An extended length would have taken in to account several economic significances for example recessions and booms. The study only covered five selected commercial banks; therefore, there should be a study on other non-bank financial institutions offering mobile loan.

5.6 Areas for Further Research

An added research should be conducted titled: effect of mobile lending on quality of loan portfolio of non-bank financial institutions since this research focused on the results of quality of bank loan portfolio of Commercial Banks in Kenya.

Research gap exist on the influence of mobile lending since this study only covered four factors; credit information sharing, size of the bank, economic conditions and interest rates. Another study should be done on other factors that might be influencing the quality of bank loan portfolio.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

- 1 African Banking Corporation Limited
- 2 Bank of Africa Kenya Limited
- 3 Bank of Baroda (K) Limited
- 4 Bank of India
- 5 Barclays Bank of Kenya Limited
- 6 Charterhouse Bank Limited*
- 7 Chase Bank (K) Limited*
- 8 Citibank N.A Kenya
- 9 Commercial Bank of Africa Limited
- 10 Consolidated Bank of Kenya Limited
- 11 Co-operative Bank of Kenya Limited
- 12 Credit Bank Limited
- 13 Development Bank of Kenya Limited
- 14 Diamond Trust Bank Kenya Limited
- 15 DIB Bank Kenya Limited
- 16 Ecobank Kenya Limited
- 17 Equity Bank (Kenya) Limited
- 18 Family Bank Limited
- 19 First Community Bank Limited
- 20 Guaranty Trust Bank (Kenya) Limited
- 21 Guardian Bank Limited
- 22 Gulf African Bank Limited

- 23 Habib Bank A.G Zurich
- 24 HFC Limited
- 25 I & M Bank Limited
- 26 Imperial Bank Limited*
- 27 Jamii Bora Bank Limited
- 28 KCB Bank Kenya Limited
- 29 Mayfair Bank Limited
- 30 Middle East Bank (K) Limited
- 31 M-Oriental Bank Limited
- 32 National Bank of Kenya Limited
- 33 NIC Bank Kenya PLC
- 34 Paramount Bank Limited
- 35 Prime Bank Limited
- 36 SBM Bank (Kenya) Limited
- 37 Sidian Bank Limited
- 38 Spire Bank
- 39 Stanbic Bank Kenya Limited
- 40 Standard Chartered Bank Kenya Limited
- 41 Transnational Bank Limited
- 42 UBA Kenya Bank Limited
- 43 Victoria Commercial Bank Limited

Appendix II: Data Collection Sheets

Table 1: Banks loan Portfolio Quality

	2013	2014	2015	2016	2017
Log Total Assets (Ksh. M)	.2860	.3134	.1100	.4189	.3116
Log Total Loans (Ksh. M)	.2812	.3027	.1231	.4121	.2761
Total Non-Performing Loans (Ksh. M)	.2832	.3310	.1171	.3561	.3342
Total Mobile loans (Ksh. M)	.2842	.3182	.1289	.4981	.3171
Non-Performing Mobile Loans (Ksh. M)	.2871	.3571	.1267	.4956	.3265
Working capital (Ksh. M)	.2876	.3116	.1162	.3712	.3189
Total Loans / Net Assets (%)	.2635	.2761	.1061	.3889	.3221
Total NPLs / Total Loans (%)	.2856	.3342	.1162	.4167	.3193
Total mobile Loans /Net Assets (%)	.2871	.3171	.1361	.4900	.3171
Total NPMLs /Total Loans (%)	.2891	.3265	.1124	.4291	.3140
Total NPMLs /Total Mobile Loans (%)	.2879	.3189	.1221	.4401	.3873
Gross Domestic Product	.2781	.3221	.1128	.4270	.3166
Average Lending Interest Rate %	.2872	.3193	.1101	.3812	.3220
Average CBR rate %	.2871	.3171	.1102	.4365	.3132
Annual Percent Rate Mobile Lending %	.2791	.3140	.1201	.4692	.4956
Number of Credit Reports Requests	.2782	.3873	.1267	.3097	.3712
Number of Mobile Lending Applications	.2883	.3166	.1164	.3287	.3889
Average Loan Maturity Period	.2802	.3220	.1201	.4192	.4167
Average Credit Horizon	.2861	.3132	.1167	.4282	.4900

Appendix III: Data Collection Sheets

	2013	2014	2015	2016	2017
Non-Performing Loans					
KCB	75,526,312	81,257,199	95,288,963	105,258,633	118,141,296
Equity Bank of Kenya	1,859,214	2,324,566	2,474,835	8,224,041	12,158,291
Commercial Bank of Africa	309,105,000	465,731,000	411,526,874	395,254,452	436,012,985
Barclays Bank	85,452,698	92,285,3654	101,257,852	118,141,296	117,140,293
Co-operative Bank	22,586,128	25,553,141	28,590,148	33,145,240	37,765,276
Total loans (000)					
KCB	227,721,781	283,732,205	345,968,686	385,746,000	422,685,000
Equity Bank of Kenya	171,363,000	214,170,000	302,452,523	266.1B	279.1B
Commercial Bank of Africa	70,759,781	103,499,731	118,141,296	117,140,293	124,248,129
Barclays Bank	118,362,000	125,423,000	145,379,000	201,617,217	325,251,789
Co-operative Bank	10,252,000	18,269,000	17,253.899	9,001,499	9,479,547
Log of Total Assets					
KCB	8.59201	8.6904	8.7467	8.7746	8.81068
Equity Bank of Kenya	8.44362	8.5373	8.5332	8.5795	8.7197
Commercial Bank of Africa	8.59201	8.6904	8.7467	8.7746	8.8107
Barclays Bank	8.3154	8.3538	8.3818	8.4141	8.4170
Co-operative Bank	8.3569	8.4556	8.3640	8.4754	8.4793
Natural Logarithm of GDP	6.5619	6.5846	6.6087	6.6335	6.65421
Annual lending rate (Mobile)					
KCB	22%	16%	15%	18%	14%
Equity Bank of Kenya	26%	26%	23%	19%	14%
Commercial Bank of Africa	90%	90%	90%	90%	90%
Barclays Bank of Kenya	-	-	-	-	14%
Co-operative Bank	-	-	-	14%	14%

Table 3: Distribution of Loan Accounts, Gross Loans and NPLs

Institution Name	Application name	Total assets (Sh Million)	Total NPLs	Number of mobile loan accounts	Mobile loan value (million)
KCB Bank					
2013	KCB Mpesa	390,851,579	1.16	8,524,889	6,856,363,789
2014		490,338,324	1.08	10,526,536	10,538,062,832
2015		558,094,154	4.08	14,231,589	14,655,419,892
2016		595,240,000	1.23	16,287,123	18,583,085,480
2017		646,668,000	1.25	21,459,236	20,634,760,294
Equity Bank					
2013	Eazzy loan	277,729,000	1.25	10,452,211	12,152,638,781
2014		344,572,000	1.09	21,425,859	18,528,851,062
2015		341,329,318	2.52	29,125,875	29,685,409,892
2016		379,748,996	1.56	35,459,612	38,544,096,438
2017		524,500,000	1.23	38,297,485	53,635,730,864
Commercial Bank of Africa					
2013	M-Shwari	190,378,964	1.5%	6,664,104	7,152,638,781
2014		193,338,251	1.3%	13,945,215	17,500,811,062
2015		209,625,182	1.9%	21,642,213	49,655,419,892
2016		215,534,551	2.2%	25,158,447	78,533,016,430
2017		219,461,652	1.8%	24,676,910	83,694,760,294
Barclays Bank of Kenya					
2013	Timiza	-	-	-	-
2014		-	-	-	-
2015		-	-	-	-
2016		-	-	-	-
2017		1.17	1.2%	7,528,414	123,586,942
Co-operative Bank					
2013	M-Co-op Cash	-	-	-	-
2014		-	-	-	-
2015		-	-	-	-
2016		-	-	-	-
2017		-	14%	3.3M	860,000,000